WHAT IS CLAIMED IS:

1. An image processing device comprising:

display means having predetermined gradation characteristics;

image input means for inputting an image composed of a plurality of pixels;

contrast estimation means for estimating contrast of the image; and

luminance correction means for raising the contrast of the image on the basis of estimated contrast and correcting luminance of each of pixels constituting the image based on the gradation characteristics,

wherein the display means displays the image in which the luminance of each of the pixels has been corrected by the luminance correction means.

2. An image processing device comprising:

display means having predetermined gradation characteristics;

image input means for inputting an image composed of a plurality of pixels;

character region extracting means for extracting a character region in which characters are drawn, from the image;

sharpening means for carrying out sharpening for remaining regions other than the character region in the image

at a predetermined sharpening level and for carrying out sharpening for the character region at a sharpening level higher than the level of the sharpening performed for the remaining regions; and

luminance correction means for correcting luminance of each of pixels constituting the character region and the remaining regions subjected to the sharpening based on the gradation characteristics of the display means,

wherein the display means displays the image in which the luminance of each of the pixels has been corrected by the luminance correction means.

3. The image processing device of claim 2,

wherein the sharpening means independently obtains the luminance g(x, y) of each of the sharpened pixels by substituting the luminance f(x, y) of each of pixels constituting the image and the coefficient h(x, y) of the sharpening level of each of the pixels into the following expression:

$$g(x, y) = f(x, y) - h(x, y) \times \nabla^2 f(x, y)$$

and

the coefficient h(x, y) of the sharpening level of each of the pixels is a predetermined first constant αi in the case where each of the pixels is in the remaining regions, and the coefficient is a second constant αc larger than the first constant αi in the case where each of the pixels is in the

character regions.

4. The image processing device of claim 2,

wherein the character region extracting means converts the luminance of each of pixels constituting the image into binary form, obtains one or more blocks of connected pixels composed of a plurality of pixels having mutually equal binary-coded luminance, obtains the circumscribed rectangles circumscribing the blocks of connected pixels, and integrates the circumscribed rectangles overlapping with one another at least at portions into a single circumscribed rectangle, and

from among regions of the circumscribed rectangles used as contours in the image, the character region extracting means extracts a region in which the difference between the maximum value and minimum value of luminance of the plurality of pixels in the respective regions is not less than a reference difference value, as a character region.

5. The image processing device of claim 2,

wherein the character region extracting means converts the luminance of each of pixels constituting the image into binary form, obtains one or more blocks of connected pixels composed of a plurality of pixels having mutually equal binary-coded luminance, obtains the circumscribed rectangles circumscribing the blocks of connected pixels, and integrates

the circumscribed rectangles overlapping with one another at least at portions into a single circumscribed rectangle, and

from among regions in the image with the circumscribed rectangles used as contours, the character region extracting means extracts regions arranged in nearly parallel with a predetermined reference axis line as character regions.

6. An image processing device of claim 2, further comprising:

contrast estimation means for estimating contrast of the image, and

contrast correction means for raising the contrast of the image on the basis of estimated contrast.

7. An image processing device of claim 6,

wherein the contrast estimation means generates a histogram of luminance of pixels constituting the image,

to obtain a first luminance value corresponding to a maximum value of the histogram in a first range of from a predetermined reference luminance to a maximum of luminance which can be taken by the pixels,

to obtain a maximum value of the histogram in a second range of values not less than a minimum of luminance which can be taken by the pixels and less than the reference luminance, and

to judge whether the maximum value of the histogram in

the second range is not less than the predetermined reference value, and

the contrast estimation means estimates, in the case where the maximum value of the histogram in the second range is not less than the predetermined reference value, the contrast of the image on the basis of the first luminance value and the luminance value corresponding the maximum value of the histogram in the second range, and in the case where the maximum value of the histogram in the second range is less than the reference value, the contrast of the image on the basis of the first luminance value and the lowest luminance value among the luminance values of all the pixels constituting the image.

8. The image processing device of claim 2, wherein, in the case where the luminance of each of the pixels is represented by the sum of predetermined three color components, the character region extracting means extracts character regions on the basis of the sum of the three color components, the sharpening means individually sharpens the three color components, and the luminance correction means individually corrects the three color components.

9. An image processing method comprising the steps of:

inputting an image composed of a plurality of pixels;

estimating contrast of the image;

raising the contrast of the image on the basis of estimated contrast and correcting luminance of each of the pixels constituting the image on the basis of gradation characteristics of display means for displaying the image; and

displaying the image, in which the luminance of each of the pixels has been corrected, on the display means.

10. An image processing method comprising the steps of:

inputting an image composed of a plurality of pixels;

extracting character regions with drawn characters in the image;

sharpening remaining regions other than the character regions in the image at a predetermined sharpening level and sharpening the character regions in the image at a sharpening level higher than the level of the sharpening performed for the remaining regions;

correcting the luminance of each of the pixels constituting the character regions and the remaining regions subjected to the sharpening on the basis of the gradation characteristics of display means for displaying the image; and

displaying the image, in which the luminance of each of the pixels has been corrected, on the display means.